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## Easy Listening

By STEVE HART  
THE PRESS DEMOCRAT

No matter where he sits, Ross McCabe doesn't miss a word in Becky Harris' third-grade reading class at Madrone Elementary School in Santa Rosa.

That's because the 8-year-old boy's classroom has FrontRow, a wireless sound system developed by a Petaluma tech company. FrontRow helps his teacher's voice reach everyone in the room.

"It's nice, because if you're sitting in the back you can still hear the teacher talking," Ross said.

Phonic Ear Inc. invented the technology for hearing-impaired students, but educators say it helps students with normal hearing, especially in crowded, noisy classrooms. With Phonic Ear's system, everyone has a front-row seat, the Petaluma company says.

The technology creates a better environment for learning, said Donna Oshel, principal at Madrone.

"I go into classes and there is such a sense of calm," Oshel said. "Teachers can whisper and be heard."

More than 400 FrontRow systems are being used in Sonoma County classrooms, and the system is showing up in schools all over the world.

In August, Seattle's public school system announced it will put FrontRow in 1,500 classrooms. School districts in Texas and Michigan have each ordered more than 1,000 systems.

It's a big new market for Phonic Ear, a 43-year-old company that moved to Petaluma in 1992.

The new business prompted Phonic Ear to change its direction in Petaluma.

"We're taking a serious step into the general education market," said company President Jens Holstebro. "We made a strategic decision to reinvent ourselves."

FrontRow's U.S. sales are about \$20 million a year, and the company forecasts double-digit growth over the next several years.

"It's an exponential growth curve," Holstebro said.

Since the FrontRow brand was launched in 2005, the company has deployed more than 55,000 systems around the world. There is a global market for 50,000 to 100,000 systems a year, Holstebro said.

The business is driven by research showing classroom sound systems help improve student performance, he said. The audio system also helps teachers avoid straining their voices. Schools have reported up to a 60 percent reduction in sick days taken by teachers with laryngitis.

Students spend about half their school day in listening activities, but classrooms are "acoustically hostile environments," according to the company. Hard surfaces amplify noise inside the classroom and students can be distracted by outside sounds such as playground noise.

As a result, students may miss 25 percent to 40 percent of what a teacher is saying, depending on where they sit, the company said.

The idea for FrontRow grew out of Phonic Ear's wireless sound technology for those who were hard of hearing, Holstebro said. Teachers who used the audio system in classes for hearing-impaired students said they thought it would help those with normal hearing.

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MARK ARONOFF / PD

Teacher Becky Harris reads to third-graders Wednesday at Madrone Elementary School in Santa Rosa. Madrone uses a wireless sound system, shown in the foreground, made by Phonic Ear Inc. in all of its classrooms to help reduce strain on teachers' voices and students' ears.  
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**FRONTROW IN ACTION**

Wireless system: FrontRow's battery-

powered system includes

a lightweight wireless microphone worn by the teacher and one to four small speakers mounted around the classroom.

Sound delivery: The teacher's voice is picked up by sensors, transmitted to the speakers and distributed around the room. Students also can use a hand-held microphone for reading aloud.

The cost: \$1,000 to \$1,500 per classroom.

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FrontRow's battery-powered system includes a lightweight wireless microphone worn by the teacher and one to four small speakers mounted around the classroom.

The teacher's voice is picked up by sensors, transmitted to the speakers and distributed around the room. Students also can use a hand-held microphone for reading aloud.

FrontRow costs \$1,000 to \$1,500 per classroom.

Phonic Ear was founded in 1963 by a Palo Alto couple, Scott and Ruth Holden. They developed playback recorders for speech clinicians and introduced the first FM sound system for hearing-impaired students in 1968.

After moving to Petaluma, Phonic Ear began building wireless audio equipment for theaters, churches and concert halls.

In 1997, Phonic Ear was sold to William Demant Holding A/S, a large Danish company that makes hearing aids, diagnostic instruments and sound systems.

William Demant, which also markets Opticon hearing aids and Sennheiser audio headsets, reported \$182 million in profit on about \$800 million in sales in 2005.

The system was tested in five classes at Rincon Valley's Madrone Elementary School in 2004 and teachers were impressed with the results, Oshel said.

Teachers found they didn't have to strain to be heard by students sitting in the back of the classroom, she said. Soon, other teachers began asking for it.

"The word got out very quickly," Oshel said.

Now, it's in all 18 of Madrone's regular classrooms.

"Teachers who weren't sure they wanted to participate now say they can't teach without it," Oshel said.

Teacher Harris said Front-Row helps her reach students in the far corners of the room. Before she used the system, "I noticed the ones in the back started to fall asleep," she said. "They didn't hear as well, and they had a lot of questions. They were missing a lot of information."

She said FrontRow was especially helpful when there was construction noise from a campus remodeling project.

During a reading lesson last week, Harris' voice could be heard clearly even when her back was turned to the class.

Ana Salazar, 8, said she likes using a microphone when she's reading aloud.

"Most people can't hear me unless I have the microphone," she said. "I have a quiet voice."

FrontRow has contributed to an improvement in Madrone's student test scores since 2004, Oshel said.

At Madrone, the cost was paid by the PTA and the state school improvement program, which gives money to schools to spend as they see fit.

Other districts are paying for the technology from their general funds, Holstebro said.

Phonic Ear changed its business plan three years ago because of the potential market for FrontRow technology, he said. Phonic Ear's other products are now being made elsewhere so Petaluma can focus on FrontRow, Holstebro said.

"I like to say we're a startup with 43 years of experience," he said.

Doing business in the general education market isn't the same as making products for the hearing-impaired, Holstebro said. The company has had to learn about school district budgeting, he said.

Last year, Phonic Ear received clearance from the U.S. Food and Drug Administration to market FrontRow as a medical device for both hearing-impaired and normal-hearing students. The company now is trying to get the technology approved for funding under the Bush administration's No Child Left Behind program, Holstebro said.

Phonic Ear has about 75 employees in Petaluma, where the audio products are designed, repaired and marketed. Though some

manufacturing occurs here, most fabrication is done in Asia.

The Petaluma operation will add employees in sales, marketing, engineering and other positions, Holstebro said.

"We expect to continue to grow here," he said.

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